

## ABSTRACT OF THE DISCLOSURE

The invention relates to a method of determining *in vitro* the capacity of a cell population to induce bone formation *in vivo* comprising the steps of: a) providing a sample of a cell population; b) dividing said sample into a first and a second part containing an equal number of cells; c) culturing the first part in the presence of an osteogenic stimulation factor; d) culturing the second part in the absence of an osteogenic stimulation factor; e) determining degrees of expression of a bone-specific protein; and f) comparing the degrees of expression of the bone-specific protein of the first part and the second part thereby providing a measure for the capacity of the bone cell population to induce bone formation *in vivo*.--